

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
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Page 2

#### AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1.(Currently Amended) In a communications system having a modem pool for communicating via a communications channel, the modem pool comprising a plurality of modems and having a plurality  $[[A]]$  of near-end-crosstalk (NEXT) cancellation A filters, a method for NEXT cancellation filter allocation comprising the steps of:

a) measuring NEXT impairment caused to at least one target modem among said plurality of modems by at least one disturber modem among said plurality of modems;

b) allocating  $P$  filters among the  $A$  filters as P probe filters, where  $P \geq 1$ ;

c) allocating at least one of the remaining  $A-P$  filters among said  $A$  filters to cancel the NEXT from the at least one disturber modem among said plurality of modems; and

d) measuring, using at least one of the  $P$  probe filters, NEXT impairment caused to the at least one target modem among said plurality of modems by at least one candidate disturber modem among said plurality of modems to which no  $A-P$  filter is currently allocated.

2.(Previously Presented) A method according to claim 1 and further comprising the step of:

e) reallocating at least one currently allocated one of said  $A-P$  filters to said  $P$  probe filters.

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 3

3. (Currently Amended) A method according to claim 2 wherein said reallocating step e) comprises reallocating if the NEXT impairment caused by the at least one said candidate disturber modem among said plurality of modems is greater than the NEXT impairment caused by any other disturber modem ~~among said plurality of modems~~ to which an A-P filter is currently allocated.
- 8 4. (Currently Amended) A method according to claim 1 wherein said measuring step d) comprises measuring ~~[[said]]~~ the NEXT impairment as the absolute sum of all NEXT cancellation filter coefficients of said at least one of the P probe filters.
- 9 5. (Currently Amended) A method according to claim 1 wherein said allocating step c) comprises allocating in order of the NEXT impairment from greater impairment to lower impairment.
- 10 6. (Currently Amended) A method according to claim 1 wherein said allocating steps b) and c) comprise allocating any of said A filters to only one of said plurality of modems.
- 4 7. (Currently Amended) A method according to claim 2 wherein said reallocating step comprises reallocating any of said A-P filters to only one of said plurality of modems.
- 11 8. (Currently Amended) A method according to claim 1 wherein said allocating steps b) and c) comprise allocating any of said A filters to at least two of said plurality of modems at different times.

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 4

12 ~~8~~. (Currently Amended) A method according to claim 2 wherein said reallocating step comprises reallocating any of said A-P filters to at least two of said plurality of modems at different times.

5 10. (Currently Amended) A method according to claim 2 and further comprising: *the steps of*  
f) measuring ~~said target modem's~~ a signal-to-noise ratio (SNR) of the at least one target modem prior to said allocating step b); and

g) measuring said ~~target modem's~~ SNR ~~once said~~ when a P probe filter has reached convergence,

and wherein said reallocating step e) is performed if said SNR measured in step g) is greater than said SNR measured in step f).

6 11. (Currently Amended) A method according to claim 2 and further comprising: *the steps of*  
f) measuring ~~said target modem's~~ a signal-to-noise ratio (SNR) and a data rate of the at least one target modem prior to said allocating step b); and

g) measuring said ~~target modem's~~ SNR ~~once said~~ when a P probe filter has reached convergence; and

h) estimating said ~~target modem's~~ data rate based on said SNR measured in step g),

and wherein said reallocating step e) is performed if said data rate estimated in step h) is greater than said data rate measured in step f).

7 12. (Previously Presented) A method according to claim <sup>6</sup>11 wherein said estimating step h) is performed if said SNR measured in step g) is greater than said SNR measured in step f).

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 5

13. (Currently Amended) A method according to claim 1 wherein the number of said plurality of modems number is at least one more than said plurality  $[[A]]$  of NEXT cancellation A filters.

14. (Currently Amended) A communications system comprising:

a modem pool for communicating via a communications channel, said modem pool comprising a plurality of modems and a plurality  $[[A]]$  of near-end-crosstalk (NEXT) cancellation A filters, said modem pool being operative to:

- a) measure NEXT impairment caused to at least one target modem among said plurality of modems by at least one disturber modem among said plurality of modems;
- b) allocate  $P$  filters among the  $A$  filters as  $P$  probe filters, where  $P \geq 1$ ;
- c) allocate at least one of the remaining  $A-P$  filters among said  $A$  filters to cancel the NEXT <sup>impairment</sup> from the at least one disturber modem among said plurality of modems; and
- d) measure, using at least one of the  $P$  probe filters, <sup>the</sup> NEXT impairment caused to the at least one target modem among said plurality of modems by at least one candidate disturber modem among said plurality of modems to which no  $A-P$  filter is currently allocated.

15. (Previously Presented) A system according to claim 14 wherein said modem pool is additionally operative to:

- e) reallocate at least one currently allocated one of said  $A-P$  filters to said  $P$  probe filters.

19 16. (Previously Presented) A system according to claim 14 wherein said modem pool is additionally operative to reallocate if the NEXT impairment caused by said candidate

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 6

disturber modem is greater than the NEXT impairment caused by any other disturber modem among said plurality of modems to which an *A-P* filter is currently allocated.

- 20 17. (Currently Amended) A system according to claim 14 wherein said modem pool is operative to measure ~~[[said]]~~ the NEXT impairment as the absolute sum of all NEXT cancellation filter coefficients of said at least one of the *P* probe filters.
- 21 18. (Currently Amended) A system according to claim 14 wherein said modem pool is operative to allocate any of said *A-P* filters in order of the NEXT impairment from greater impairment to lower impairment.
- 22 19. (Currently Amended) A system according to claim 14 wherein said modem pool is operative to allocate any of said *A* filters to only one of said plurality of modems.
- 23 20. (Currently Amended) A system according to claim 15 wherein said modem pool is operative to reallocate any of said *A-P* filters to only one of said plurality of modems.
- 24 21. (Currently Amended) A system according to claim 14 wherein said modem pool is operative to allocate any of said *A* filters to at least two of said plurality of modems at different times.
- 25 22. (Currently Amended) A system according to claim 15 wherein said modem pool is operative to reallocate any of said *A-P* filters to at least two of said plurality of modems at different times.

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 7

16 23. (Currently Amended) A system according to claim 15 wherein said modem pool is operative to:

f) measure ~~said target modem's~~ a signal-to-noise ratio (SNR) of the at least one target modem prior to allocating the *P* filters; and

g) measure said ~~target modem's~~ SNR ~~once said~~ when a *P* probe filter has reached convergence,

and perform said reallocating of the at least one currently allocated one of said *A-P* filters if said ~~target modem's~~ SNR measured of said at least one target modem ~~[[once]]~~ when said *P* probe filter has reached convergence is greater than said ~~target modem's~~ SNR measured prior to allocating the *P* filters.

17 24. (Currently Amended) A system according to claim 15 wherein said modem pool is operative to:

f) measure ~~said target modem's~~ a signal-to-noise ratio (SNR) and a data rate of the at least one target modem prior to performing said allocating the *P* filters; and

g) measure said ~~target modem's~~ SNR ~~once said~~ when a *P* probe filter has reached convergence; and

h) estimate said ~~target modem's~~ data rate based on said SNR measured in said ~~target modem's~~ SNR ~~[[once]]~~ when said *P* probe filter has reached convergence,

and perform said reallocating of the at least one currently allocated one of said *A-P* filters if the data rate estimated in said ~~target modem's~~ SNR measured ~~[[once]]~~ when said *P* probe filter has reached convergence is greater than said ~~target modem's~~ SNR measured prior to allocating the *P* filters.

APPLICANT(S): KANTSCHUK, Amir  
SERIAL NO.: 09/721,753  
FILED: November 27, 2000  
Page 8

18 ~~25~~<sup>17</sup>. (Currently Amended) A system according to claim ~~24~~<sup>17</sup> wherein said modem pool is operative to perform said ~~estimating target-modem's~~ estimated data rate based on said SNR measured in said ~~target-modem's~~ SNR ~~[[once]]~~ when said P probe filter has reached convergence if said ~~target-modem's~~ SNR measured ~~[[once]]~~ when said P probe filter has reached convergence is greater than said ~~target-modem's~~ SNR measured prior to allocating the P filters.

26. (Currently Amended) A system according to claim 14 wherein the number of said plurality of modems ~~number~~ is at least one more than said plurality ~~[[A]]~~ of NEXT cancellation A filters.